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PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional) 05-081
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Type or printed name _____	First Named Inventor John Cook	
Art Unit 3641	Examiner Troy Chambers	

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

- applicant/inventor.
- assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)
- attorney or agent of record.
Registration number 32,901
- attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____

/A. Blair Hughes/

Signature

A. Blair Hughes

Typed or printed name

312-913-2123

Telephone number

May 28, 2008

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.
Submit multiple forms if more than one signature is required, see below*.

*Total of _____ forms are submitted.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Case No. 05-081)

In the Application of:)
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)
 Cook et al.) Examiner: Troy Chambers
)
Serial No. 10/522,490))
) Group Art Unit: 3641
Filed: January 26, 2005)
)
Title: Temperature Responsive Safety)
 Devices for Munitions) Conf. No. 4470
)
)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

PRE-APPEAL REQUEST FOR REVIEW

Pre-appeal brief review is requested for the above application. This paper sets forth Applicant's concise statement of clear errors in the Examiner's final rejection.

I. BACKGROUND

Claims 1, 5, 12, 37 and 50 and 53-61 stand finally rejected for being anticipated by St. Amand (USP 6,019,025). The application includes a single independent claim 1 which is reproduced below.

1. A munitions casing comprising an annulus of a shape memory alloy disposed around said casing which shape memory alloy has been subjected to a combination of mechanical and thermal treatments so as to impart a memory wherein upon subsequent heating to a predetermined temperature, said memory causes said annulus to contract radially inwardly and rupture the said munitions casing.

II. TRAVERSE OF THE ANTICIPATION REJECTION

Claims 1, 5, 12, 37 and 50 and 53-61 stand finally rejected for being anticipated by St. Amand (USP 6,019,025). An important basis for the anticipation rejection is the examiner's position that no patentable weight should be given to certain claim 1 terms because the examiner

alleges the ignored terms are directed to the manner of making the device rather than to an aspect of the apparatus. The claim 1 terms given no patentable weight (and underlined in claim 1 above) are (1) "which has been subjected to a combination of mechanical and thermal treatments"; and (2) upon subsequent heating to a predetermined temperature, said annulus will contract radially inward and rupture said munitions casing". The examiner's decision to ignore the functional limitations cannot be sustained because functional claim limitations are allowable with certain exceptions, those exceptions do not apply here and the examiner has not shown or tried to show that the exceptions apply here. Moreover, all claims are novel over St. Amand when one or both of the ignored claim limitations are given patentable weight.

A. The MPEP And Case Law Require That Patentable Weight Generally Be Accorded To Functional Claim Limitations

The current case law and the MPEP make it clear that functional claim limitations are not *per se* objectionable. As confirmed in the MPEP 2173.05(g):

"A functional limitation is an attempt to define something by what it does, rather than by what it is (e.g., as evidenced by its specific structure or specific ingredients). **There is nothing inherently wrong with defining some part of an invention in functional terms.** Functional language does not, in and of itself, render a claim improper. In re Swinchart, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).

In *Swinehart*, the CCPA found that patentability over the prior art could be determined by "what the feature does rather than what the feature is". The CCPA stated:

There is nothing intrinsically wrong with the use of such a technique in drafting patent claims. Indeed we have even recognised in the past the practical necessity of the use of functional language.

439 F.2d at 212, 169 USPQ at 228. In particular, the *Swinehart* court noted that functional claim language was only objectionable if the limitation either failed to clearly define the subject matter being claimed or if the limitation was not supported by an enabling disclosure. *Id.* At 213, 169 USPQ at 229. As long as these problems are not present, the functional claim limitation is not objectionable.

Indeed, the claims of the prior art St. Amand patent use functional language to define certain claim terms. Claim 1 of St. Amand, for example includes:

... a third member formed of a shape memory alloy, the third member having a first shape under normal operating conditions to allow the elastomeric member

into sealable contact with the second member, the third member assuming a second shape when heated, the second shape retracting the elastomeric member away from sealable contact with the second member.

The presence of function language in the St. Amand claims provides additional support for Applicant's position that functional language is allowable in claims and further that functional language is used to claim shape memory alloys.

B. The Examiner Has Not Met His Burden Of Showing That The Functional Limitations Are Not Entitled to Patentable Weight

In the First Office Action and in the Final Rejection for this case, the only reason the examiner gave for ignoring the two limitations recited above is because the limitations are functional. As discussed above, functional claim limitations are not *per se* objectionable. Instead, functional limitations can only be ignored if they run afoul of the first or second paragraph of 35 USC Section 112. The examiner's failure to consider the functional limitations in this case cannot be sustained and the Final Rejection must be withdrawn at least because the examiner has not given any statutory grounds for ignoring the limitations leaving the Applicant unable to adequately rebut the examiner's position on Appeal.

C. The Ignored Claim Limitations Must Be Given Patentable Weight

MPEP 2173.05(g) makes it clear that functional limitations are allowable providing, as in the case of any limitation, they clearly define the scope of protection quoting *In re Barr*:

It was held that the limitation used to define a radical on a chemical compound as "incapable of forming a dye with said oxidizing developing agent" although functional, was perfectly acceptable because it set definite boundaries on the patent protection sought.

444 F.2d 588, 170 USPQ 33 (CCPA 1971). A functional claim limitation is acceptable under the second paragraph of 35 USC 112 where the limitation provides **definite boundaries** on the patent protection sought. In addition, as with any other claim term, a functional claim term must be enabled by the specification.

1. the claim term “upon subsequent heating to a predetermined temperature, said annulus will contract radially inwards and rupture the said munitions casing” must be given patentable weight

The Examiner wrongly gave the claim 1 phrase: “upon subsequent heating to a predetermined temperature, said annulus will contract radially inwards and rupture the said munitions casing” no patentable weight. As an initial matter, the claim term was amended in the First Office Action Reply and now reads: “upon subsequent heating to a predetermined temperature, said memory causes said annulus to contract radially inwards and rupture the said munitions casing”. The amended claim term – which the examiner ignored in the Final Rejection – must be given patentable weight because it defines, in functional terms, a **current physical property** of the apparatus.

The improperly ignored claim 1 phrase requires the relationship between the SMA annulus and casing to be such that the combination causes a casing rupture to occur when the shape memory alloy is heated above its predetermined memory temperature. The ignored functional limitation is a **technical property** of the shape memory alloy and the examiner must give the phrase patentable weight. Consistent with the MPEP and case law it is submitted that the ignored functional limitations is clear in scope and is definite because it can be easily tested. If upon heating the SMA to the predetermined temperature, the SMA annulus causes the casing to rupture, the apparatus is inside the scope of claim 1. Thus the metes and bounds of this claim 1 feature fulfill the requirements of 35 USC 112, and must be accorded patentable weight.

2. The claim term “which has been subject to a combination of mechanical and thermal treatments” must be given patentable weight

The Examiner has also wrongly concluded that the claim 1 phrase “which has been subject to a combination of mechanical and thermal treatments” is entitled to no patentable weight. That phrase was clarified in Applicant’s last response to read “which has been subject to a combination of mechanical and thermal treatments so as to impart a memory”. This claim feature must be given patentable weight at least because it is enabled and it is definite.

In order for the invention to operate, the shape memory alloy must have an “imparted” memory. This claim 1 limitation, therefore, differentiates between two types of shape memory alloys – those without imparted shape memories, but which are nonetheless capable of being imparted with a shape memory, and those with an imparted shape memory. Indeed such a

physical property is definite because it can be tested by a skilled man by heating the alloy above its transition temperature. If the alloy has a memory it will shrink; if not, it will remain unchanged. Therefore, the whole phrase clearly defines a **current and definite physical property** of the alloy used in the claimed invention – the alloy has been imparted with a memory. Therefore, this term must be given patentable weight as well.

B. The Pending Claims Are Not Anticipated When The Ignored Claim Terms Are Given Patentable Weight

All pending claims are novel at least because St. Amand does not disclose a shape memory annulus wherein “upon subsequent heating to a predetermined temperature, said memory causes said annulus to contract radially inwards and rupture the said munitions casing”. Instead, the shape memory feature of St. Amand contracts and expands to engage or disengage a seal. Indeed, St. Amand teaches away from the claimed invention at column 2 lines 39-42, where it teaches that the operation of the device is to provide a retractable seal, the action of which, does not damage the weapon or the launch tube. For at least this reason, the functional limitation in claim 1 that “upon subsequent heating to a predetermined temperature, said memory causes said annulus to contract radially inwards and rupture the said munitions casing” when given due patentable weight, is sufficient alone to render all claims novel and patentable over St. Amand.

Respectfully submitted,

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